

ABSTRACT OF THE DISCLOSURE

An adaptable orthogonal frequency-division multiplexing system (OFDM) that uses a multiple input multiple output (MIMO) to having OFDM signals transmitted either in accordance with time diversity to reducing signal fading or in accordance with spatial diversity to increase 5 the data rate. Sub-carriers are classified for spatial diversity transmission or for time diversity transmission based on the result of a comparison between threshold values and at least one of three criteria. The criteria includes a calculation of a smallest eigen value of a frequency channel response matrix and a smallest element of a diagonal of the matrix and a ratio of the largest and smallest eigen values of the matrix.